



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
[www.uspto.gov](http://www.uspto.gov)

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/583,040	02/05/2007	Yasuo Okamoto	Q79258	6750
23373	7590	02/18/2010	EXAMINER	
SUGHRUE MION, PLLC			LEE, REBECCA Y	
2100 PENNSYLVANIA AVENUE, N.W.				
SUITE 800			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20037			1793	
			NOTIFICATION DATE	DELIVERY MODE
			02/18/2010	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

sughrue@sughrue.com  
PPROCESSING@SUGHRUE.COM  
USPTO@SUGHRUE.COM

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/583,040	OKAMOTO, YASUO	
	<b>Examiner</b>	<b>Art Unit</b>	
	REBECCA LEE	1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

1) Responsive to communication(s) filed on 28 December 2009.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

4) Claim(s) 1,2 and 4-20 is/are pending in the application.  
 4a) Of the above claim(s) 2 and 14-16 is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 1,4-13 and 17-20 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
     1. Certified copies of the priority documents have been received.  
     2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
     3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)	4) <input type="checkbox"/> Interview Summary (PTO-413)
2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)	Paper No(s)/Mail Date. _____ .
3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)	5) <input type="checkbox"/> Notice of Informal Patent Application
Paper No(s)/Mail Date _____.	6) <input type="checkbox"/> Other: _____ .

## **DETAILED ACTION**

### ***Status of Claims***

Claims 2 and 14-16 remain withdrawn. Claim 3 is cancelled. Claims 17-20 are newly added. Claims 1, 4-13 and 17-20 are present for examination where claims 1, 4, 6-8 and 10 have been amended in view of amendment filed 12/28/09.

### ***Status of Previous Rejections***

The rejections of claims 1 and 4-13 under 35 U.S.C. 103(a) have been maintained.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 1, 4-12 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamio et al. (JP 2000265232) in view of Sakamoto et al. (JP 64039339) and Yanagimoto et al. (US 20040261615).

Kamio et al. in view of Sakamoto et al. is applied to claims 1 and 4-12 as set forth in the 08/26/09 office action.

Claim 1 is amended to include composition recitations from claims 6-10, and such limitations are rejected for the same reasons as set forth in the rejections of claims 6-10.

Claims 1 and 4 are amended to have a pre-heating (homogenizing) temperature of 200-470 °C, and 370-470 °C, respectively.

Kamio et al. in view of Sakamoto et al. do not expressly teach the claimed pre-heating (homogenizing) temperature.

However, it is well held that discovering an optimum value of a result effective variable requires only routine skill in the art. In the instant case, the pre-heating (homogenizing) temperature is a result effective variable since it affects the forgeability of the forging material and the uniformity of mechanical characteristics of the forged aluminum alloy product, as evidenced by Yanagimoto et al. (section 0082). Thus, one of ordinary skill in the art would have optimized the pre-heating (homogenizing) temperature in the process of Kamio et al. in view of Sakamoto et al. in order to achieve desired forgeability of the forging material and the uniformity of mechanical characteristics of the forged aluminum alloy product.

The amended features in claims 6-8 and 10 do not change the scope of previous rejected claims.

Claim 17 is rejected for the same reasons as set forth in the rejections of claims 6 and 7.

Claims 13 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamio et al. (JP 2000265232) in view of Sakamoto et al. (JP 64039339) and Yanagimoto et al. (US 20040261615) as applied to claim 1 above, and further in view of Evans et al. (US7267734).

Kamio et al. in view of Sakamoto et al., and further in view of Evans et al. is applied to claim 13 as set forth in the 08/26/09 office action, with Yanagimoto et al. is applied to the amended feature in claim 1 as set forth above.

Regarding claim 20, Kamio et al. in view of Sakamoto et al. and Yanagimoto et al. is silent about the casting speed. However, it is well held that discovering an optimum value of a result-effective variable requires only routine skill in the art MPEP 2144.05 II. In the instant case, casting speed is a result effective variable since it affects the intermetallic phases of the alloy, as evidenced by Evans et al. (Column 3, lines 65-67 and Column 4, lines 1-3). Therefore, it would have been obvious to one of ordinary skill in the art to have optimized the casting speed of Kamio et al. in view of Sakamoto et al. and Yanagimoto et al. in order to achieve desired intermetallic phases of the aluminum alloy.

Claims 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kamio et al. (JP 2000265232) in view of Sakamoto et al. (JP 64039339) and Yanagimoto et al. (US 20040261615) as applied to claim 1 above, and further in view of Sato et al. (US 6702907).

Kamio et al. in view of Sakamoto et al. and Yanagimoto et al. do not expressly teach the aluminum alloy further comprises Sr and Sb in the claimed amounts.

Sato et al. teach Sb in an amount of 0.05-0.5 mass% and Sr in an amount of 0.005-0.05 mass% can be added to a aluminum alloy with high silicon content (Column

7, lines 40-51), such as the claimed aluminum alloy and that of Kamio et al. in view of Sakamoto et al. and Yanagimoto et al.

It would have been obvious to one of ordinary skill in the art to introduce Sb and Sr as taught by Sato et al. into the aluminum alloy of Kamio et al. in view of Sakamoto et al. and Yanagimoto et al. in order to uniformly disperse the Si particles in the alloy and to suppress generation of coarse primary Si crystals, as taught by Sato et al. (Column 7, lines 40-51).

In addition, since the amounts of Sr and Sb disclosed by Kamio et al. in view of Sakamoto et al., Yanagimoto et al. and Sato et al. overlap the claimed ranges, a prima facie case of obviousness exists MPEP 2144.05 I.

### ***Response to Arguments***

Applicant's arguments with respect to the amended feature in claims 1 and 4 and the newly added claims have been considered but are moot in view of the new ground(s) of rejection. The amended preheating temperature recited in claims 1 and 4, and the compositions recited in the newly added claims have been addressed above.

Applicant's remaining arguments filed 12/28/09 have been fully considered but they are not persuasive.

Applicant argues Kamio et al. do not teach the claimed composition. However, in the previous action, the composition is covered by Sakamoto et al. In response to applicant's arguments against the references individually, one cannot show nonobviousness by attacking references individually where the rejections are based on

combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Applicant also argues the aluminum alloy of Kamio et al. appears to made from different process from Sakamoto et al.. However, as stated in the previous action, the aluminum alloy with a composition disclosed by Sakamoto et al. exhibit excellent wear resistance and forgeability by casting and heat-treating, which is also desirable by Kamio et al. One of ordinary skill in the art would have found it obvious to adapt the aluminum alloy of Sakamoto et al. in the process of Kamio et al. to achieve the improved wear resistance and forgeability of the aluminum alloy.

Applicant also argues Sakamoto et al. do not disclose the aluminum alloy contains P. However, as stated in the previous action, Kamio et al. disclose the alloy could comprise P in the claimed amount. One of ordinary skill in the art would have found it obvious to introduce P to achieve desired size of Si particles as taught by Kamio et al. (section 0009).

Applicant also argues Sakamoto et al. do not disclose any inventive example with a specific Ni content. However, as stated in the previous action, Sakamoto et al. teach Ni in an amount of 0.3-2.0 wt% could be added, which reads on instant claims.

Applicant also argues Evans et al. has no relation to the effect contribution to the formation of the crystallization product networks in an alloy. This argument is incommensurate with the scope of instant invention since instant claims do not have any requirement in the formation of the crystallization product networks in an alloy. As stated in the previous action, the casting speed is an result effective variable since it

affects the intermetallic phases of the alloy, as evidenced by Evans et al. (Column 3, lines 65-67 and Column 4, lines 1-3); and one of ordinary skill in the art would have found it obvious to optimize the casting speed in order to achieve desired intermetallic phases of the aluminum alloy. In addition, with respect to applicant's argument that Evans et al. do not teach the claimed casting speed, again, examiner only relies on Evans et al. to show that the casting speed is a result effective variable. One of ordinary skill in the art would have varied the casting speed according to different composition of the alloy to achieve desired intermetallic phases of the alloy.

Therefore, applicant's arguments are not convincing.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to REBECCA LEE whose telephone number is (571)270-5856. The examiner can normally be reached on Monday-Friday 8:00 am - 5:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, ROY KING can be reached on (571)272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/R. L./  
Examiner, Art Unit 1793

/Roy King/  
Supervisory Patent Examiner, Art  
Unit 1793